PROCEEDINGS OF THE
ROYAL ENTOMOLOGICAL SOCIETY
OF LONDON

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ORDINARY MEETING

WEDNESDAY, 1ST MARCH, 1950, at 5.30 p.m.

AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 1st February, 1950.
2. Recommendations of candidates for Fellowship.
3. Announcement of election of new Fellows.
4. Additions to the Library.

Presented.

Amateur Entomologists' Society. *Directory of Natural History Societies. First Supplement.* 8vo. London. 1949. [The Amateur Entomologists' Society.]

British Museum (Natural History). *British mosquitoes and their control.* 3rd ed. 8vo. London. 1949. [Economic Series No. 4A.] [The Trustees of the British Museum.]

British Museum (Natural History). *Mosquitoes and their relation to disease.* 5th ed. 8vo. London. 1949. [Economic Series No. 4.] [The Trustees of the British Museum.]

Fattig, P. W. *Larvaevoridae (Tachinidae) or parasitic flies of Georgia.* [Bulletin of the Emory University Museum No. 8, 1949.] [The Author.]

Sharp, D. *An album of correspondence of the late Dr. David Sharp.* [The Director, Cawthron Institute, Nelson, New Zealand.]

Sloane, Sir Hans. *A voyage to the islands Madera, Barbados, Nieves, S. Christophers and Jamaica, with the natural history . . . of the last of those islands.* 2 vols. fol. London. 1707–25. [Mr. D. A. MacAlister.]

Purchased.

Didier, Robert. *Atlas des Coléoptères Lucanides du globe. Genre* Lucanus. 4to. Paris. 1949.

Portevin, G. *Les grands Nécrophages du globe.* [Encyclopédie entomologique (A) VI.] 8vo. Paris. 1926.

Portier, P. *La biologie des Lépidoptères.* [Encyclopédie entomologique (A) XXIII.] 8vo. Paris. 1949.

Scott, E. *A list of butterflies and moths occurring in the neighbourhood of Ashford, Kent.* 8vo. Ashford and London. 1936.

Wagner, H. *Taschenbuch der Käfer.* 3rd ed. 8vo. München. 1943.

In addition separates have been presented by Mr. Lionel Lacey, Mr. H. M. Hallet, Miss C. Longfield, Mr. H. Britten, Mr. E. B. Britton, Mr. H. E. Box, The Anti-Locust Research Centre, Miss Theresa Clay, United States Department of Agriculture, The Smithsonian Institution, The American Entomological Society, Prof. P. A. Buxton, Mr. Frederico Lane, Dr. K. G. Blair, and the University of Texas.

5. Admission of Fellows.

6. Exhibits.

Fellows are particularly requested to bring suitable exhibits to the Meeting even though it may not be possible to announce their intention to do so beforehand.

> *Note.*—To avoid congestion in the Library and to enable exhibits to be displayed to greater advantage, a table has been placed in the meeting-room for this purpose. Fellows are asked to place their exhibits on this table, with a suitable explanatory note, as soon as possible on the afternoon of the meeting, so that they are available for inspection there before the meeting opens.

7. Communications.

Dr. E. C. Zimmerman (a visitor).

The origin, distribution and development of island life in the Pacific. (Postponed from February 1st. For abstract *see* 1950, *Proc. R. ent. Soc. Lond.* (C.) **15** : 2.)

TEA will be served in the Library before the meeting.

A card index of Fellows' addresses arranged **on a geographical basis** is now available for the use of Fellows in the Society's Rooms. Addresses in Great Britain are grouped under counties; elsewhere under Dominions, Colonies, Foreign States, etc.

ADMISSION OF FELLOWS

Any Fellow who has not been formally admitted to the Society under Chapter XIV, Section 4 of the Bye-laws and attends the meeting on 1st March, 1950, is requested to inform the Secretary before 5.15 p.m. on that date.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 1ST FEBRUARY, 1950.

Dr. V. B. Wigglesworth, F.R.S., President, in the Chair.

Present, 71 Fellows and 16 Visitors.

The minutes of the Ordinary meeting held on 7th December, 1949, were confirmed and signed, subject to the addition of the following to the list of candidates for election, whose names were read for the first time: T. Sankaran, B.Sc., M.Sc., Air Marshall Sir Robert H. M. S. Saundby, K.B.E., C.B., M.C., D.F.C., A.F.C., Miss J. M. Thomas, R. M. C. Williams, and Capt. W. S. Wright, B.Sc.

The minutes of the Annual Meeting held on 18th January, 1950, were also confirmed and signed.

The President announced that he had appointed Mr. C. T. Gimingham, Mr. A. Roebuck and Mr. A. J. A. Woodcock as Vice-Presidents for the coming year.

The names of the following candidates for election were read for the first time: O. K. Abraham, B. K. Behura, M.Sc., Ph.D., K. L. Boratynski, Ph.D., W. A. C. Bullock, B.Sc., A. N. Clements, Capt. J. L. Cloudsley-Thompson, M.A., Miss J. R. Groves, B.Sc., S. M. Hammad, B.Sc., Miss J. Harker, M.Sc., W. J. Jones, S. M. Hanson, N. Hasan Khan, T. Karabag, W. Marr, T. E. Mittler, B.Sc., C. F. dos Passos, W. Ritson, D. Roberts, N. A. Saliba, Ph.C., A. A. Sandosham, L. C. Scaramuzza, C. E. Taylor, B.Sc., Miss G. C. Williams, B.Sc., G. H. W. Wood.

For the second time: P. Basilewsky, J. E. Cranham, B.A., D. C. Drummond, A. E. H. Higgins, A.R.C.S., D.I.C., R. O. Jarvis, W. F. Jepson, O.B.E., Ph.D., A.R.C.S., Miss B. K. Macpherson, Miss E. N. Marks, M.Sc., M. C. Ruben, T. Sankaran, B.Sc., M.Sc., Air Marshall Sir Robert H. M. S. Saundby, K.B.E., C.B., M.C., D.F.C., A.F.C., Miss J. M. Thomas, R. M. C. Williams, and Capt. W. S. Wright, B.Sc.

The Secretary read the names of the following newly-elected Fellows of the Society: Dr. William Beebe, Dept. of Tropical Research, New York Zoological Society, New York, U.S.A.; L. A. A. M. Berger, 2, Vallée des Artistes, Linkebeek, Brussels, Belgium; W. S. I. Cox, 248, Castle Lane, Bournemouth; P. S. B. Digby, Dept. of Zoology and Comparative Anatomy, University Museum, Oxford; F. Fincher, M.B.O.U., Randan Wood, Woodcote, Bromsgrove, Worcs.; F. G. Hawkins, Broad Eaves, Fernhill Lane, Balsall Common, Nr. Coventry; D. G. Pollard, B.Sc., c/o Research Division, Agriculture and Forests, Wad Medani, Sudan; C. Smedley, 6, Charfield Close, Bourneville, Birmingham, 30; H. E. Webb, 20, Audley Road, Hendon, London, N.W.4; D. P. Webley, B.Sc., N.A.A.S., Woodthorne, Wergs Road, Tettenhall, Staffs.

Thanks were voted to donors of gifts to the Library since the meeting on 7th December, as recorded in these *Proceedings*, Volume 14, No. 11, and Volume 15, No. 1. In addition the President called attention to two further interesting gifts recently received, the one comprising a copy of Sir Hans Sloane's *Natural History of Jamaica*, 1707–25, in two volumes, presented by Mr. D. A. MacAlister, and the other an album of correspondence and other interesting personal notes belonging to the late Dr. David Sharp which Dr. David Miller, Director of the Cawthron Institute, Nelson, New Zealand, had passed to the Society for its archives. The works were exhibited and it was agreed that the Society's thanks be conveyed to the donors of these gifts.

Mr. J. L. Gregory signed the Obligation Book and was admitted a Fellow of the Society.

In the unavoidable absence of Dr. Zimmerman, owing to illness, Professor P. A. Buxton showed a film taken in the S. Sudan illustrating the transmission of onchocerciasis by *Simulium damnosum.* He said, in reply to an enquiry from the President, that no successful scientific control measures had so far been found. The large-scale use of insecticides was difficult and experience with D.D.T. in streams had shown that fish were also killed so that there was a danger of the natural predator being destroyed while *S. damnosum* would almost certainly return. The ideal would be to get rid of the nematode parasite which was the original source of the disease.

Mr. H. L. G. Stroyan made a communication on the subject of speciation in Aphids.

He emphasized that it was essential for the taxonomist to adapt his conceptions of speciation processes to the special features of the group with which he worked. In the aphids there was an obvious and tempting biological peculiarity in the parthenogenesis by which reproduction, except in one generation per year, was carried on, which appeared to offer a theoretical explanation by which mutations could become clonally " fixed," thus providing a method of *per saltum* speciation. In fact, for reasons which could at present be surmised but not proved, this process appeared to be of slight or negligible value. If the classical theories of divergence due to isolation were applied, however, serious difficulty was encountered owing to the fact that isolation seemed to be ecological in aphids rather than geographical, and it was therefore necessary to explain, if possible, how the populations became isolated. Two recently-enunciated concepts suggested a possible solution : first, the fragmentation of polyphagous species in certain well-defined cases such as *Metopolophium*, and secondly, a process of " host-facilitation " which could be observed when aphids were transferred from one host species to another, whether the new host was one normally suited to the aphid or not. In the latter case a " physiological memory " of the host on which the transferred female was born appeared to form a barrier to the F.1 generation which, if overcome by them disappeared in the F.2, but which provided a stabilising influence preventing the indiscriminate breaking up of species through accidental translocations. Populations which succeeded in acclimatising themselves on new hosts formed recognisable ecotypes before they became morphologically separable from the parent race, and it was suggested that the term " polytypic species " in an ecological sense could justifiably be applied to groups of ecotypes of this kind.

In the discussion which followed Mr. Stroyan's talk Dr. Richards referred to the resemblance between parthenogenetic species and said that it was not always possible to tell the form of reproduction from an examination of material, as the degree of variation was often the same. In Cuckoo bees strains, as distinct from species, did exist, but it was not possible to say precisely how this led to speciation. He felt that Mr. Stroyan had not explained how species became isolated and did not cross back with normal ones, particularly in the case of species which returned to winter hosts. He felt that if these phenomena could be explained in aphids, they could be explained in other species. Mr. Stroyan said that if the aphids were isolated away from their winter hosts and continued to reproduce on an unaccustomed plant the new generation would encounter a barrier if they then tried to get accustomed to the original host plant. The ant association, too, tended to prevent aphids leaving the host plant. Dr. Richards agreed ants were an important factor, and recalled that the aphid population went down to a very low minimum in winter, but Mr. Stroyan affirmed that this minimum did not leave the host plant.

Mr. P. Murphy, a visitor, described a soil faunal survey which was at present being conducted on Hackness Moor, a heathland area in Yorkshire, about 7 miles N.W. of Scarborough, where the dominant vegetation was *Calluna vulgaris*. He said one of the purposes of this survey was to ascertain the present faunal status, and to follow population changes when the heathland was cultivated and trees planted. The soil faunal group being studied was micro-arthropods, principally Acari and Collembola, and he suggested that the term meiofauna might be used to describe these and other organisms which lie between the micro- and macro-fauna. This classification, though very artificial, was probably the most suitable one in the present state of our knowledge of these groups, and provided a convenient division for techniques and methods of study. The apparatus used in extracting samples was described. The split funnel extractor, a diagram of which was shown, was designed to facilitate the handling of large numbers of small samples and also to overcome some of the known objections encountered with the more traditional Berlese or modified Berlese funnels. Brief reference was then made to methods used in handling and counting the fauna obtained.

Preliminary examination of the acarine material indicated some new British records and possibly some new species.

In reply to an enquiry by the President, Mr. Murphy said he had used flotation methods but had not found them suitable to the purposes of this particular survey.

Professor G. C. Varley spoke on the relative efficacy of Benzene Hexachloride (Gammexane) and Naphthalene in the protection of insect cabinet specimens from damage by the Museum Beetle, *Anthrenus verbasci* L. He said there would be great saving of time in museums if gammexane would protect cabinet specimens of insects from damage. Its vapour pressure was very low (that of the gamma isomer being given as $2{\cdot}1 \times 10^{-5}$) and far below that of naphthalene or paradichlorobenzene. It would thus last many years without renewal in cabinets and boxes. The effects of gammexane and naphthalene were compared as follows: 18 cabinet drawers were used, into the chambers of 6 gammexane was put, 6 received naphthalene, and 6 had neither, to act as controls. Into each drawer was put an open petri dish with about 6 larvae of *Anthrenus verbasci*, a piece of flannel and a little fish meal and a few crushed insects to act as food. The effect of humidity was studied by adding a dish with saturated salt solution to half the drawers. This would keep the humidity from falling much below 70 per cent. The cabinet was left in the butterfly room of the Hope Department from November, 1948, to January, 1950, a total of 14 months.

It resulted from these experiments that in all dishes the larvae introduced in November, 1948, mostly became adult by February or March, 1949. They did a small amount of damage. Some of the adults laid eggs, and the damage done by the many larvae resulting was considerable. Adults of this generation began to appear in January, 1950. The distribution of second-generation larvae was as follows:

	None.	*Few.*	*Many.*
Gammexane	3	1	2
Naphthalene	6	0	0
Controls	0	0	6

With gammexane larvae reached maturity and bred, and in half the cases the next generation did considerable damage. With naphthalene larvae reached maturity, but no second generation developed, and damage was consequently slight. The damage in the controls was not obviously worse than in two of the gammexane dishes.

Professor Varley concluded that the vapour of gammexane was not effective against museum beetle. If it could not be used as a contact insecticide it was not safe to use it, and naphthalene was safer.

In the discussion which followed, Professor Buxton mentioned that DDT would last some time in a closed drawer and experiment might show that it could, with advantage, be used more extensively in preserving collections, but Professor Varley called attention to the difficulty of putting it into a collection which already existed. Mrs. Richardson said she had found that liquid naphthalene poured round drawers seemed to last two or three years. Dr. Uvarov remarked that in his experience gammexane had the disadvantage of being a serious irritant, affecting the eyes and nose of persons working on material that had been treated with it. Baron C. G. M. de Worms suggested paraformaldehyde, but, as this would evaporate rapidly, the President suggested metallic mercury. Dr. Potter gave it as his opinion that few insecticides were universally safe and effective, several were poisonous and he did not feel there was any particular preparation he could recommend unreservedly. Mr. Collenette said that naphthalene had been used in the Raffles Museum, Singapore, where, when it was poured over the bottoms of drawers it was effective, but rotted the pins !

Mr. H. Oldroyd exhibited a selection of insects collected by him during his recent visit to Kumba (British Cameroons).

Dr. B. M. Hobby exhibited a case of Coleoptera with their prey. The captures included representatives of the families CICINDELIDAE, CARABIDAE, GYRINIDAE, STAPHYLINIDAE, COCCINELLIDAE, LAMPYRIDAE and CANTHARIDAE. He said that among many examples of predacious insects and their prey sent to the Hope Department, University Museum, Oxford, there was a preponderance of species active on the wing such as Asilids, Empids and fossorial wasps. There were few beetles, though the order Coleoptera contained the majority of insects with the predacious habit. This discrepancy was not surprising, as many beetles were nocturnal or sought their prey on the ground, and often in secluded and special habitats. They did not usually fly with their prey and, moreover, soon broke it up with their powerful biting jaws. The association of predator and prey was thus of brief duration and greatly reduced the chance of their being seen. Casual records tended to focus attention on large and conspicuous prey and probably many small ones were overlooked.

In closing the meeting the President expressed the thanks of the Society to the Fellows who had assisted on this occasion by making communications at extremely short notice.

N. D. RILEY, *Hon. Secretary.*

The next meeting will be held on 5th April, at 5.30 p.m.

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